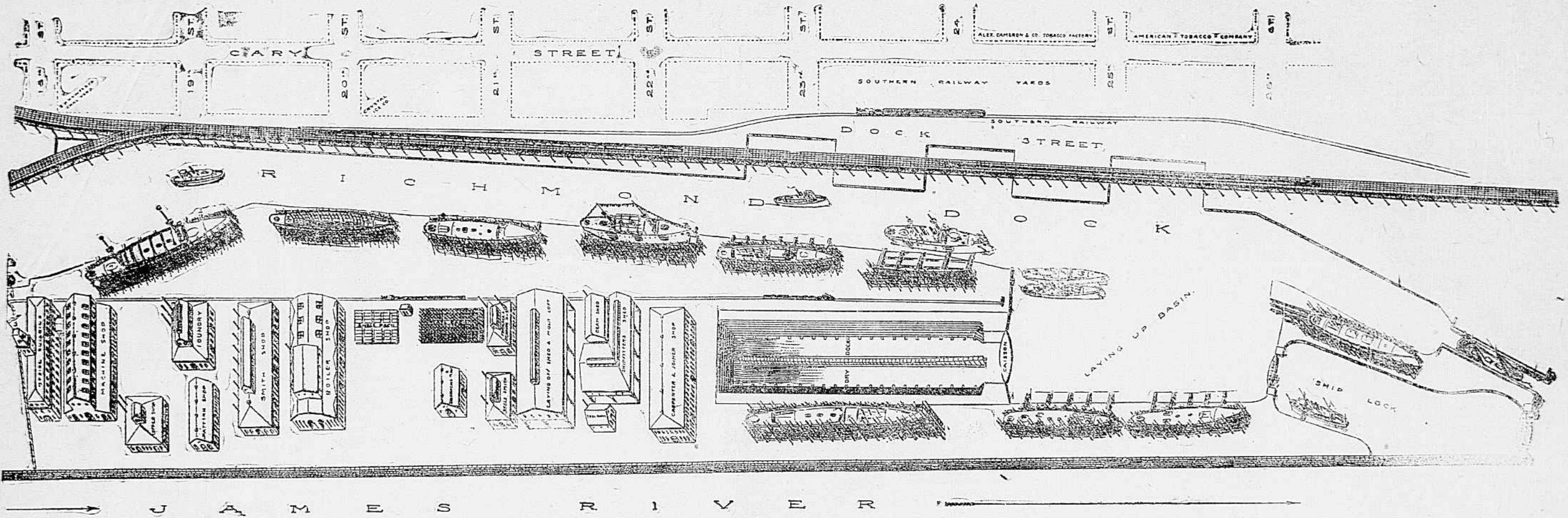


TRIGG SHIP-YARDS

The Extensive Plant Has Grown With Marvellous Rapidity During the Few Years of Its Existence, and from Present Indications Is Destined to Become One of the Great Ship-Building Plants of the Country, as Well as Making Richmond a Centre of This Most Important Industry.

THE CONSTRUCTION OF THE MODERN WARSHIP AND WHAT IT MEANS.



SHIP YARD OF WILLIAM R. TRIGG COMPANY, RICHMOND, VA.

This Spacious Plant Covers Forty-five Acres of Land and Has Twelve Buildings, the Largest of Which is 100x250 Feet, With a Clearance of Forty-five Feet. One Thousand Men Are Employed Here.

The birth of the twentieth century is an epoch, a marvelous epoch in the industrial history of Richmond. One hundred years ago only a few houses, simple in construction and crude in appearance, dotted the hills and sat in placid valleys of this now beautiful and thriving city.

There were no great business institutions, no factories, no large department stores, no railroads, no magnificent streets, no shipping, no combinations of wealth or capital to forward business interests for many years after William Byrd set foot upon this picturesque ground and said, "Here will I build a city."

The ravages of the Civil War left the Richmond that her sturdy people had built, the queen city of the South, devastated, sacked and poor. With the courage and heroic characteristics of Virginia, these people set to work and with might of brawn and brain and an indomitable energy, have erected upon the charred ruins left as a result of that conflict a majestic city famed throughout the world for its handsome monuments, its stately edifices and its hospitable, loyal citizens. These things have been accomplished by years of struggle and effort. They represent the toll and labor of all the people and not of a few, and whatever of honor and glory is the reward belongs to the whole and not to a part of a heroic and unconquered community.

BUILDING OF A BOAT.

The building of a boat is not a very simple or inexpensive thing. The construction of a modern war vessel equipped with its powerful expansion engines, its gigantic machinery, is a far greater matter in point of cost, labor and material, and even in time consumed, than an ordinary person has the faintest idea. Almost immediately upon the organization of the William R. Trigg Company, because of the high standing of the gentlemen at the head of that concern and their well-known business qualifications, was awarded by the United States Government contracts for six war vessels. At that time the company was practically a company in name and capital only. It was fortunate, however, in being enabled to secure outright the large machinery making plant of Talbot & Sons, and with this start the work of erecting the great ship-building establishment on the southern shore of the dock was begun and pushed forward with great rapidity, even though the operations upon the ships the company had contracted to build had to be commenced at once and pushed with all possible vigor. When it is considered that the installation of such a plant as the Trigg Company is establishing here has been accomplished by this concern in the brief fifteen months of its existence. These facts show conclusively that the Trigg people are in the ship-building business to stay, and that their company proposes to meet all competitors and to have its share of the business in its line.

vertical engines placed in water-tight compartments, each with a condenser, water tubular boilers and a bunker capacity for at least eighty tons of coal. Electric lights are supplied throughout and there will be one searchlight of an approved pattern. They have good, strong qualities and capable of operating at high speed in a moderate sea. There are two conning towers, the forward one of which is of half-inch nickel-steel plates. The battery is composed of three rapid-fire guns and mounts weighing about two tons, with three and a half tons of ammunition.

Mounted on deck are three fifteen-foot torpedo tubes with torpedoes, and storage space below for two additional torpedoes and five war-heads. Berthing space is provided for a crew of twenty-six men and three officers, and provision space for twenty days.

The Dale and the Decatur, the torpedo-boat destroyers, are also nearing completion. They are much larger and more formidable vessels than the torpedo boats, and are terrific fighting machines.

TWO GREAT DESTROYERS.

The destroyers have twin screws, vertical engines, placed in separate water-tight compartments, each with a condenser, water tubular boilers and a bunker capacity for carrying at least two hundred tons of coal, affording some protection to engines and boilers. The vessels are lighted throughout with electricity and supplied with one searchlight of an approved pattern. They are built staunch and strong, with good freeboard, good sea-going qualities, and designed for high

speed in a sea way. Two conning towers adorn them, the forward one of which will be made of half-inch nickel-steel plates. The battery is sufficient to strike terror to hostile warships. It is composed of seven rapid-fire guns, which, with their mounts and fittings, weigh some eight tons. On the midship line are mounted two twenty-four torpedo tubes to carry seventeen-foot torpedoes, weighing in all four tons, while a space below is provided for storing the two spare torpedoes and four war-heads.

Berthing space is provided for a crew of sixty men and four officers and provision space for twenty days. If, on trial, the average speed of the destroyers for the two hours' trial falls below the speed guaranteed by the bidder, it may be accepted by the department at a reduction at the rate of \$8.00 for each quarter of a knot. If the speed falls below twenty-eight knots the vessels will be rejected.

It is said by expert naval engineers that these boats, so far as construction, workmanship and material go, are the equal of any ever built for the United States navy. They will cost \$200,000 each.

The following data cover the general requirements for engines, boilers, and appendances: Engines, two vertical, four-cylinder, triple expansion, of about 4,500 combined indicated horse-power. These engines to be located in separate water-tight compartments on opposite sides of a fore and aft 'midship bulkhead; each to be provided with approved auxiliaries and dependencies, including pumps, feed-heaters, feed, and filter tanks. Two screws, 2. Boilers, six of water-tube type, of about 4,700 horse-power. This includes the indicated horse-power of the main engines and the auxiliaries. There will be two air-tight boiler compartments, with athwartship fire-rooms. Approved auxiliaries must be provided for forced draft and pumping facilities. There will be two funnels 70 feet high, and the vessel is to be heated by steam throughout and lighted by electricity from a plant for that purpose.

The Galveston's main battery will consist of ten 6-inch guns of 50 calibres in length, mounted as follows: One forward and one aft on the 'midship line on the upper deck, and four on each side on the deck below; the forward pair of guns to train right astern to 90 degrees abaft the beam; the after pair of guns to train right astern to 90 degrees forward of the beam; the four waist guns to train at least 90 degrees forward and abaft the beam. Provision will be made for securing all the gun-deck guns in a nearly fore and aft position, thus leaving an unobstructed aisle.

The secondary battery will consist of not less than eight 6-pounder R. F. guns; two 1-pounders, and four machine guns, so disposed as to give a large arc of fire; also one field gun. The weight of this battery, with its mounts and accessories, will be 98 tons. The weight of ammunition to be carried will be 133 tons.

There will be an outfit of small arms, ordnance stores, etc., and an armory fitted up for the storage of 140 rifles and 50 revolvers, and other small articles will be provided.

The general dimensions, etc., of the Galveston may be judged by a glance at the following:

Length, load-water line (trial displacement), feet.....292
Extreme breadth at load-water line, feet.....43
Trial displacement, tons.....3,100
Mean draft at trial displacement, feet.....15-1/2
Greatest draft, full load, feet.....16-3/4
Total bunker capacity, not less than, tons.....700
Coal carried on trial, tons.....470
Feed water carried on trial, tons.....40
Speed on trial, not less than, knots.....16-1/2
Two triple-expansion four-cylinder engines of about, horse-power.....4,500
Six water tube boilers, of about, horse-power.....4,700
Full load displacement, tons.....3,400
Twin screws.

FIRST PASSENGER STEAMER.

The first fast passenger steamer will be the "Virginia," handsome and palatial craft being built for the Chesapeake and Ohio Railway Company to ply between Norfolk and Newport News, taking the place of the "Louise." This boat will be 29 feet in length, with beam of 31 feet and 9 feet draft. It will have a speed of 18 knots, and will be furnished and equipped in the most modern fashion. Besides the boats named the Trigg Company is building two large revenue cutters for the government, as well as other boats, and has contracts taxing the capacity of its

plant far into the future.

PLANT DESIRED.
An industry paying for labor alone \$10,000 a week, which is spent with Richmond merchants and owners of real estate, is one to be fostered. An enterprise to advertise this city in the remotest parts of the world is one of which the community may be proud. The plant of the Trigg Company being entirely new and modern, is the equal, if not the superior, of any similar plant in the world. The great machinery installed within this establishment is the very best that money could buy for the uses to which it is put. Several of the buildings constituting the Trigg plant have not yet been finished, and the concern has been forced to work its hundreds of men under rather cramped conditions. But, notwithstanding this, the establishment, with its vast departments and its ponderous machinery, is a revelation to a person who has never visited such an institution. It shows the development of a vessel from the very beginning, and presents those lesser details which are often overlooked when the ship is viewed in its entirety. There are drafting-rooms, designing-rooms, foundries, blacksmith-shops, pattern-shops, machine-shops, brass and copper fitting departments, and scores of other features which show the progress of the mechanical arts. Perhaps the most interesting of all the sights to see are the huge water tube boilers made for the vessels. To the ignorant man they suggest the idea of an octopus, with hundreds of metallic ten-

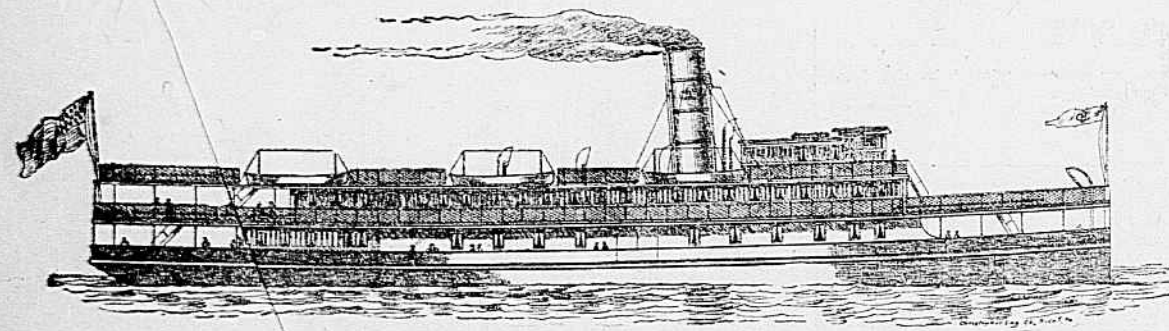
tales. As one strolls about amidst these noisy scenes he sees molten metals handled like water, and meets with many new contrivances for cutting, trimming, and boring steel.

Pending the completion of the huge ship-fitters shed, which is to be 100 by 200 feet, the hulls of all the boats are built in what is known as the old ship-fitters' shed. Here by the aid of giant machinery the great ship plates are punched and sheared and trimmed. It is here also that the company makes its own rivets and bolts and many of its tools. Above this shed is what is called the mould loft, a spacious place where the mould for shaping the different parts of the hull is made. Just east of the ship-fitters' shed huge pickling tanks are located, and the large steel plates are dipped in these tanks, which are filled with acid in order that the mill scale may be removed.

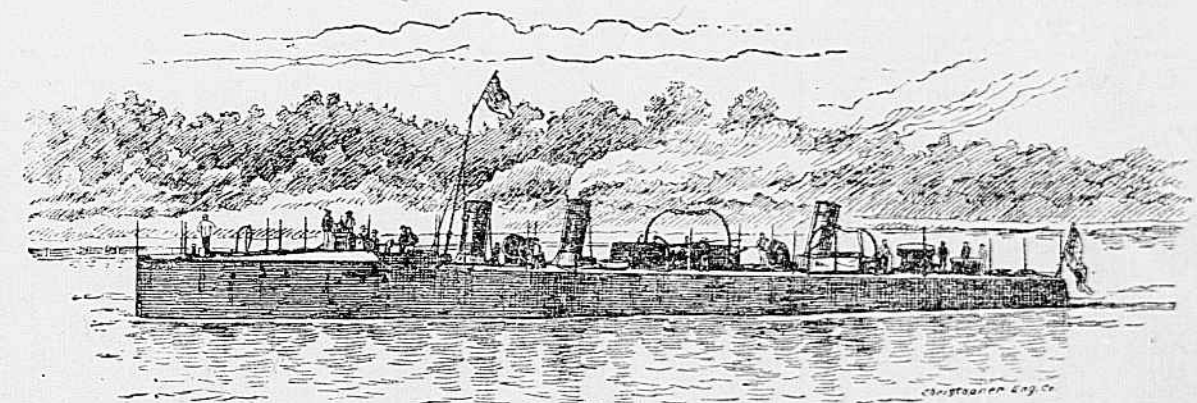
Quite an interesting feature of the establishment is the new bending shed, where heavy iron bars are bent into angles and curves according to the shapes required. In this shed is one of the largest furnaces in America, being sixty-five feet long. The new ship-fitters' shed is almost ready for occupancy. It is the most interesting place about the yards, and is filled with massive machinery, all of which is brand new. In this shed is a set of rolls for bending plates to the shape of the ship, each roll weighing

WHAT ADMIRAL HITCHCOCK SAYS.
Admiral Hitchcock, chief of the Bureau of Construction of the United States Navy, after a visit to the Trigg shipyards last February, had the following to say of the establishment to his colleagues in Washington:

"My visit was a revelation in every sense of the word, and was to me particularly gratifying. Although the reports that have been made to the department from time to time through the naval inspectors in charge of the Trigg works have been entirely satisfactory and most encouraging, yet I was not at all prepared for the advanced condition which confronted me. The works were much more extensive than I had anticipated, and the ships are equipped with the most modern machinery to be found, thus enabling the company to do its own work instead of subcontracting it. Not only so with the machinery, but with the men, who seem highly intelligent and fully abreast of the important task that confronts them. Much of the work that I inspected was of a difficult nature, and yet I found it of the highest type, and I repeat that it was most surprising, and gratifying to me, and by beginners in the art of shipbuilding. The company, as well as the city, should be gratified at the high type of mechanics at the works. Many of the castings, forgings, and other work of a difficult



"Virginia," the Handsome Twin-Screw Steamer Being Built for the C. & O.



The Torpedo Boat "Stockton," on Its Unofficial Trial.

A GREAT INSTITUTION.

One institution in Richmond, one that puts food upon the tables and clothing upon the backs of a thousand families, and which will carry Richmond's name across the seas and to the uttermost ends of the earth, one which stands in the forefront of the great industrial enterprises of America, did not have its beginning in the old days when tobacco passed over the water and the reward was treated with the same high favor, or in that trying period following the Civil War, known as the reconstruction period, but was launched in greatness and vigor just upon the eve of the century the world has entered.

The William R. Trigg Company was organized October 16, 1898. To-day a plant covering forty-five acres of ground, situated between the Richmond Dock and beautiful James River, rises with the majesty of a thousand artisans with their hammers and other implements; three steel bound torpedo-boats, two huge torpedo-boat destroyers, and other craft anchored in the dock, magnificent modern boats, representing probably more than two millions of dollars, are daily approaching completion, while the keel blocks are being laid for the United States cruiser "Galveston," for which the Government has contracted to pay the sum of \$1,027,000. Just as Camp Philadelphia, famous as a shipbuilding city, so is Trigg making for Richmond a name which will bring to her people millions from the outside world.

COURAGE AND CAPITAL.

It took no small amount of courage on the part of Mr. Trigg and his associates to launch an institution, the life and existence of which meant competition, probably bitter and severe competition with the great ship-building firms of the world, and then millions and hundreds of millions, so it can be fancied that it was with some timidity that the Trigg Company, when the Government, in 1898, called for bids for the construction of ships to form what is to be known as our new navy, put in bids on several of the people of Richmond when the telegraph wires flashed from Washington the news that the Government had awarded to the Wm. R. Trigg Company the contracts for the construction of three torpedo-boats, two torpedo-boat destroyers and one protected cruiser. The torpedo-boats, the Stockton, the Shubrick and the Thornton, and the destroyers, the Dale and the Decatur, have long since been launched and the Stockton has recently made its official trial, making the speed of 23.43 knots, or 43 of a knot more than the maximum speed called for in the contract. This boat will be formally turned over to the Government about January 15th. The Thornton and Shubrick are also nearing completion, and the latter will have its trial about January 15th. The contract price of these boats is \$225,000 each.

THE TORPEDO BOATS.

The torpedo boats have twin screws, speed in a sea way. Two conning towers adorn them, the forward one of which will be made of half-inch nickel-steel plates. The battery is sufficient to strike terror to hostile warships. It is composed of seven rapid-fire guns, which, with their mounts and fittings, weigh some eight tons. On the midship line are mounted two twenty-four torpedo tubes to carry seventeen-foot torpedoes, weighing in all four tons, while a space below is provided for storing the two spare torpedoes and four war-heads.

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THE CRUISER GALVESTON.

The keel of the protected cruiser Galveston is ready to be laid, and this work will be commenced in a few days, or as soon as the blocks are ready. This will be the first of the larger class of ships the Trigg people will build for the United States navy. It will be 308 feet 11 inches long, with a beam of 41 feet, draft 15 feet

and intricate nature are done here in a manner second to none.

"The location of the plant I also found to be ideal in every particular. After the ships have been launched they rest upon the water in the basin as steadily and quietly as if upon the ways, and supported by stays. They are wholly undisturbed by tides, and waves, and breakers, which is a great point pending construction and the installing of machinery, etc. I was delighted with the plans shown to me, and with the site proposed for enlarging the ship-yards, and for the construction of the large basins for the accommodation of battle-ships, cruisers and the like. Such a fresh-water basin as is here contemplated, coupled with the Trigg shops, affording facilities for repair, would be of great service to the Government, and would save much expense in docking.

"And, again, not only the site, but Richmond is likewise an ideal place for ship-yards. Being inland, and its strategic value well established, there could be no interruption to works in time of war. But more, a city of the size of Richmond has many advantages over smaller places, for instance, Newport News, in that there can always be found laborers to rely upon. The city is not only large enough to supply all of the laborers necessary, but it affords them a permanent home, where supplies are cheap, and churches and schools abound, together with all necessary places of amusement."

The torpedo boats have twin screws,